ACCESSORIES FOR PORTABLE ELECTRONIC DEVICES

CROSS-REFERENCE TO RELATED APPLICATIONS

The present application claims the benefit of U.S. Provisional Application No. 62/541,537, entitled "ACCESSORIES FOR PORTABLE ELECTRONIC DEVICES," filed Aug. 4, 2017, which is incorporated herein by reference in its entirety for all purposes.

FIELD

Embodiments described herein generally relate to accessory devices that can be removably coupled with portable electronic devices. More specifically, the described accessory devices can be multi-segment articles that can support portable electronic devices at different inclination angles.

BACKGROUND

Recent advances in computing devices have made portable electronic devices increasingly more prevalent. Users often pair different accessories with their electronic devices to add features and/or to customize their electronic devices. Besides adding functionalities to the electronic devices, accessories can be protective in nature or simply aesthetically pleasing adornments, or in some cases be both protective and ornamental in nature. For example, accessories can be articles such as cases and/or folios. In some cases, while portable electronic devices are often equipped with touch screens, accessories can include input devices such as keyboards to provide additional input options to the users as well as to offer protection to the electronic devices.

SUMMARY

In one aspect, a folio for use with a portable electronic device having a display assembly overlaid by a protective layer is described. The folio may include a base segment having a size and shape in accordance with the portable electronic device. The folio may further include an attachment segment coupled to the base segment, the attachment segment comprising a mechanism capable of securing a rear surface of the portable electronic device to the attachment segment. In some instances, when the portable electronic device is secured to the attachment segment, i) a closed configuration comprises the base segment overlaying the protective layer, and the attachment segment overlaying the rear surface of the portable electronic device; and (ii) a support configuration comprises both the portable electronic device and the attachment segment above the base segment, and the attachment segment balances and supports the portable electronic device.

In another aspect, a folio for use with a portable electronic device is described. The folio may include a base carrying an input device capable of communicating with the portable electronic device. The folio may further include an attachment panel capable of removably coupling with the portable electronic device. The folio may further include a cascading rotational support system having a first rotation element coupled to the base and a second rotation element coupled to the attachment panel such that the cascading rotational support system is capable of suspending the portable electronic device above the base. In some instances, when a first torque is applied to the attachment panel, only the first rotation element rotates until the first rotation element reaches a first hard stop. Further, in some instances, when a second torque opposite the first torque is applied to the attachment panel, only the second rotation element rotates until the second rotation element reaches a second hard stop different from the first hard stop.

In another aspect, folio for removably coupling to a portable electronic device is described. The folio may include a folio removably coupled to the portable electronic device. The folio may include a first segment carrying an input device that is capable of communication with the portable electronic device. The folio may further include a second segment pivotally coupled to the first segment. The folio may further include a third segment pivotally coupled to the second segment. The third segment is capable of being removably coupled to the rear surface of the portable electronic device. In some instances, in a support configuration, the folio supports the portable electronic device, the second segment is at an acute angle with respect to the first segment and the portable electronic device and the third segment are suspended above the first segment. Also, in some instances, in a closed configuration, the first segment covers an entirety of the display assembly.

Other aspects and advantages of the invention will become apparent from the following detailed description taken in conjunction with the accompanying drawings which illustrate, by way of example, the principles of the described embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

The disclosure will be readily understood by the following detailed description in conjunction with the accompanying drawings, wherein like reference numerals designate like structural elements, and in which:

FIG. **1** illustrates an isometric view of an electronic system that can include an accessory article and a portable electronic device, in accordance with some embodiments.

FIG. **2**A illustrates a side view of the electronic system shown in FIG. **1**, showing the system a closed configuration.

FIG. **2**B illustrates an isometric view of the electronic system shown in FIG. **2**A, further showing a digital pen.

FIG. **3** illustrates a side view of a support configuration of the article carrying the electronic device.

FIG. **4**A-**4**C illustrate a transition of the electronic system from a closed configuration to a support configuration.

FIG. **5** illustrates an isometric view of the electronic system shown in FIG. **1**, showing the electronic device separated from the article along with a digital pen.

FIGS. **6**A and **6**B illustrate two side views of an electronic system in different configurations, in accordance with some embodiments.

FIG. **7**A-**7**D illustrate a transition of the electronic system, shown in FIGS. **6**A and **6**B, transitioning from a closed configuration to a clipboard configuration.

FIG. **8** illustrates a block diagram of a method for automatically altering an operation state of a portable electronic device based on the configuration of an article removably coupled to the portable electronic device, in accordance with some embodiments.

FIG. **9** shows a block diagram depicting a method for automatically altering operation of a portable electronic device based on different types of input devices in communication with the portable electronic device, in accordance with some embodiments.

FIG. **10** illustrates a block diagram of a computing device in accordance with some embodiments.